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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,360	07/26/2001	Marco Giovanardi	2001-0111-01	7591

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CYMER INC
LEGAL DEPARTMENT
17075 Thornmint Court
SAN DIEGO, CA 92127-2413

EXAMINER	
ART UNIT	PAPER NUMBER

DATE MAILED: 06/06/2007

Please find below and/or attached an Office communication concerning this application or proceeding.

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
09916360	7/26/01	GIOVANARDI ET AL.	2001-0111-01

CYMER INC
LEGAL DEPARTMENT
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SAN DIEGO, CA 92127-2413

EXAMINER	
Corey P. Chau	
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Commissioner for Patents

A copy of a corrected Examiner's Answer, which has been corrected to include Examiner and Conferees names.

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/916,360
Filing Date: July 26, 2001
Appellant(s): GIOVANARDI ET AL.

MAILED
JUN 06 2007
GROUP 2600

Wesley Strickland
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/26/2006 appealing from the Office action mailed 4/19/2006.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct. However, the date of the Final Office Action is April 19, 2006, not July 19, 2006 as disclosed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,700,304	FULLER et al.	3-2004

5,315,203	BICOS	5-1994
5,485,053	BAZ	1-1996
5,261,200	SASAKI et al.	11-1993
6,501,644	SILVERMAN et al.	12-2002
2002/0092699	WORRELL et al.	7-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 3, 6, 9, 12, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6700304 to Fuller et al. (hereafter as Fuller).

Regarding Claim 1, Fuller discloses a device for reducing vibration in a section of material (12), said vibration causing an acoustic disturbance in a range of frequencies detectable by a target (i.e. active/passive distributed absorber for vibration and sound radiation control) (Fig. 1; column 2, lines 10-19), the device comprising: an active damper (14) comprising an electroactive element in electrical communication with an electrode (column 2, lines 20-33; column 5, lines 28-37), the active damper located a first distance from said section of material (Fig. 1); a passive damper comprising a sound reducing material (i.e. a mass layer 16 comprises a lead layer, which read on the passive damper), said passive damper located a second distance from said section of material (Fig. 1, reference 16; column 4, lines 37-59), wherein said second distance is greater than said first distance (Fig. 1), and wherein at least one of the active damper and the passive damper reduces the magnitude of the acoustic disturbance reaching the target (column 2, lines 3-9 and lines 54-63); and a constraining layer disposed in

contact with said passive damper (Fig. 23; column 4, lines 38-60; column 12, line 55 to column 13, line 10).

All elements of Claim 3 are comprehended by Claim 1. Claim 3 is rejected for the reasons stated above apropos to Claim 1 (Fig. 1; column 4, lines 37-59).

Regarding Claim 6, Fuller discloses said active damper damps low frequency acoustic disturbances and said passive damper damps high frequency acoustic disturbances (column 1, lines 13-31; column 5, lines 1-14; column 6, lines 5-50).

Regarding Claim 9, Fuller discloses said active damper (14) is in mechanical contact with said section of material (12) (Fig. 1).

Regarding Claim 12, Fuller discloses the active damper further comprises a compensator including at least one positive position feedback (PPF) filter implemented on a digital signal processor (DSP) (Figs. 19 and 20; column 10, line 37 to column 39).

Regarding Claim 18, Fuller discloses a method of damping vibration in a section of material (12), said vibration causing noise audible to a human ear, comprising the steps of: bonding an actuator having active damping means (14), passive damping means (i.e. a mass layer 16 comprises a lead layer, which read on the passive damper) and a constraining means in contact with the passive damping means to a desired portion of the section of material (Fig. 1; column 2, lines 20-33; column 4, lines 37-59; column 5, lines 28-37); activating the active damping means to damp low frequency vibration in the section of material (column 1, lines 13-31; column 5, lines 1-14; column 6, lines 5-50); wherein the active damping means and the passive damping means

together reduce noise to a greater extent than would be possible if the active damping means or the passive damping means act alone (column 2, lines 3-9 and lines 54-63).

Claims 1, 7, 9, 15, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5315203 to Bicos.

Regarding Claim 1, Bicos discloses a device for reducing vibration in a section of material, said vibration causing an acoustic disturbance in a range of frequencies detectable by a target (abstract), the device comprising: an active damper (14) comprising an electroactive element in electrical communication with an electrode, the active damper located a first distance from said section of material (Figs. 1 and 4); a passive damper comprising a sound reducing material (16), said passive damper located a second distance from said section of material (Figs. 1 and 4), wherein said second distance is greater than said first distance (Figs. 1 and 4), and wherein at least one of the active damper and the passive damper reduces the magnitude of the acoustic disturbance reaching the target (Figs. 1 and 4); and a constraining layer disposed in contact with said passive damper (12).

Regarding Claim 7, Bicos discloses the sound reducing material comprises a viscoelastic material (Figs. 1 and 4)

Regarding Claim 9, Bicos discloses said active damper is in mechanical contact with said section of material (Figs. 1 and 4).

Regarding Claim 15, Bicos discloses a device for reducing audible noise in a vehicle by reducing vibration of a vehicle section (abstract; column 3, lines 14-49),

comprising: an actuator attached to a surface of the vehicle section, the actuator comprising at least one piezoelectric element and at least one electrode (14)(Figs. 1 and 4); a viscoelastic portion which is located outside the actuator with respect to the surface of vehicle section (16); and a constraining layer having a higher stiffness than said viscoelastic portion (10)(column 2, lines 22-40); wherein the at least one piezoelectric element and the at least one electrode are in electrical communication with each other (Figs. 1 and 4); the constraining layer is in mechanical contact with the viscoelastic layer and wherein the device functions to reduce noise by the actuator damping specific sound modes and by the viscoelastic portion damping all of the sound modes (Figs. 1 and 4).

Regarding Claim 18, Bicos discloses a method of damping vibration in a section of material, said vibration causing noise audible to a human ear (abstract), comprising the steps of: bonding an actuator having active damping means (14), passive damping means (16) and a constraining means (12) in contact with the passive damping means to a desired portion of the section of material (Fig. 4); activating the active damping means to damp low frequency vibration in the section of material (i.e. low frequency is not clearly define in the claim and can be interpret as the frequency at which the active damping means is damping)(Figs. 1 and 4); wherein the active damping means and the passive damping means together reduce noise to a greater extent than would be possible if the active damping means or the passive damping means act alone (abstract; column 1, line5 to column 2, line 59).

Claims 1, 7, 8, 9, 15, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent No. 5485053 to Baz.

Regarding Claim 1, Baz discloses a device for reducing vibration in a section of material, said vibration causing an acoustic disturbance in a range of frequencies detectable by a target (abstract), the device comprising: an active damper (40) comprising an electroactive element in electrical communication with an electrode, the active damper located a first distance from said section of material (Fig. 3); a passive damper comprising a sound reducing material (10), said passive damper located a second distance from said section of material (Fig. 3), wherein said second distance is greater than said first distance (Fig. 3), and wherein at least one of the active damper and the passive damper reduces the magnitude of the acoustic disturbance reaching the target (Fig. 3); and a constraining layer disposed in contact with said passive damper (50).

Regarding Claim 7, Baz discloses the sound reducing material comprises a viscoelastic material (Fig. 3).

Regarding Claim 8, Baz discloses said viscoelastic material is selected from the group of viscoelastic materials consisting of: 3M Damping Foil, Soundcoat Soundfoil, EAR Tad Pad and Sorbothane (column 7, lines 56-65).

Regarding Claim 9, Baz discloses said active damper is in mechanical contact with said section of material (Fig. 3).

Regarding Claim 15, Baz discloses a device for reducing audible noise in a vehicle by reducing vibration of a vehicle section (abstract; column 10, lines 32-43),

comprising: an actuator attached to a surface of the vehicle section, the actuator comprising at least one piezoelectric element and at least one electrode (40)(Fig. 3); a viscoelastic portion which is located outside the actuator with respect to the surface of vehicle section (10); and a constraining layer having a higher stiffness than said viscoelastic portion (50)(Fig. 3; Table 1); wherein the at least one piezoelectric element and the at least one electrode are in electrical communication with each other (Fig. 3); the constraining layer is in mechanical contact with the viscoelastic layer and wherein the device functions to reduce noise by the actuator damping specific sound modes and by the viscoelastic portion damping all of the sound modes (column 1, line 45 to column 2, line 15).

Regarding Claim 18, Baz discloses a method of damping vibration in a section of material, said vibration causing noise audible to a human ear (Fig. 3), comprising the steps of: bonding an actuator having active damping means (40), passive damping means (10) and a constraining means (50) in contact with the passive damping means to a desired portion of the section of material (Fig. 3); activating the active damping means to damp low frequency vibration in the section of material (i.e. low frequency is not clearly define in the claim and can be interpret as the frequency at which the active damping means is damping)(Fig. 3); wherein the active damping means and the passive damping means together reduce noise to a greater extent than would be possible if the active damping means or the passive damping means act alone (abstract; column 1, line 45 to column 2, line 15).

Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6700304 to Fuller in view of U.S. Patent No. 5261200 to Sasaki et al. (hereafter as Sasaki).

Regarding Claim 7, Fuller discloses the second layer 16 is a distributed mass layer (e.g, absorber layer) which may have a constant thickness and may be comprised of a thin sheet of lead. It is well understood, however, that the mass distribution of the mass layer 16 may include varying masses within the mass layer 16 along the entire or large area of the structure 12, and other appropriate thin sheet material, such as, steel, aluminum composite fiberglass material and the like may be used when practicing the present invention, but does not expressly disclose the sound reducing material comprises a viscoelastic material. Therefore it would have been obvious to one having ordinary skill in the art to seek known sound reducing materials. Sasaki for example, discloses sound reducing materials such as oil damper, viscosity damper, lead damper, steel rod damper, friction damper, or **viscoelastic damper** in order to absorb vibration energy (column 8, lines 40-68). It would have been obvious to one having ordinary skill in the art to employ any known sound reducing materials, such as that of Sasaki. Therefore it would have been obvious to one having ordinary skill in the art to modify Fuller with the teaching of Sasaki to utilize a sound reducing material comprising viscoelastic material in order to absorb vibrations.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6700304 to Fuller in view of U.S. Patent No. 5261200 to Sasaki as applied to

claim 7 above, and further in view of U.S. 6501644 to Silverman et al (hereafter as Silverman).

Regarding Claim 8, Fuller as modified discloses a viscoelastic layer, but only generally; no specific details are taught. Therefore it would have been obvious to one having ordinary skill in the art to seek known viscoelastic materials. Silverman for example discloses an example of suitable viscoelastic materials are Sorbothane from Sorbothane Company, rubber materials of the type available from the E.A.R. Co., and a Japanese source material, similar to Sorbothane, called Sorbo (column 4, lines 10-25). It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ any known viscoelastic materials, such as that of Silverman. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Fuller with the teaching of Silver man to utilize viscoelastic materials such as Sorbothane from Sorbothane Company, rubber materials of the type available from the E.A.R. Co., or a Japanese source material, similar to Sorbothane, called Sorbo (i.e. viscoelastic materials is selected from the group of viscoelastic materials consisting of: 3M Damping Foil, Soundcoat Soundfoil, EAR Tad Pad and Sorbothane).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6700304 to Fuller in view of U.S. Patent Application Publication No. 20020092699 to Worrell et al. (hereafter as Worrell)

Regarding Claim 11, Fuller discloses an active damper (14), but only generally; no specific hardware or software is taught. Therefore it would have been obvious to have ordinary skill in the art to seek known active dampers. Worrell for example, discloses an active damper comprising a QuickPack.RTM. actuator. It would have been obvious to one having ordinary skill in the art to employ any known active dampers, such as that of Worrell. Therefore it would have been obvious to one having ordinary skill in the art to modify Fuller with the teaching of Worrell to utilize an active damper comprising a QuickPack.RTM. actuator.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5315203 to Bicos in view of U.S. 6501644 to Silverman.

Regarding Claim 8, Bicos discloses a viscoelastic layer, but only generally; no specific details are taught. Therefore it would have been obvious to one having ordinary skill in the art to seek known viscoelastic materials. Silverman for example discloses an example of suitable viscoelastic materials are Sorbothane from Sorbothane Company, rubber materials of the type available from the E.A.R. Co., and a Japanese source material, similar to Sorbothane, called Sorbo (column 4, lines 10-25). It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ any known viscoelastic materials, such as that of Silverman. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Bicos with the teaching of Silverman to utilize viscoelastic materials such as Sorbothane from Sorbothane Company, rubber materials of the type available

from the E.A.R. Co., or a Japanese source material, similar to Sorbothane, called Sorbo (i.e. viscoelastic materials is selected from the group of viscoelastic materials consisting of: 3M Damping Foil, Soundcoat Soundfoil, EAR Tad Pad and Sorbothane).

(10) Response to Argument

Appellant argue that the "concept of a constraining layer is adequately explained in the specification of the present application such that a person of ordinary skill in the art would clearly understand its meaning. Moreover, all of the references cited by the Examiner, i.e. Fuller, Bicos, and Baz discloses and discuss the constraining layer concept, thus, further buttressing the fact that the meaning of the terms "constraining layer" and "constrained layer" have established meanings that ,are clear to those skilled in the art. With this established meaning, it is clear that "several thin sheets of lead stacked on top of each other" do not constitute a constraining layer in contact with a passive damper. Appellant further respectfully contends that it is incorrect for the Examiner to disregard the word "constraining" in claims 1 and 18 as being unclear, and instead, apply a reference that simply has a "layer" as applicable prior art. In short, Appellant respectfully asserts that several thin sheets of lead stacked on top of each other do not identically disclose a passive damper and a constraining layer in contact with the passive damper as recited in the claims". However, the examiner respectfully disagrees.

The prior art and the specification of the present application discloses different types of constraining layer which does not limit the constraining layer to a particular type of constraining layer. The specification merely discloses examples of constraining layers

such as a constraining layer, which may be aluminum, which Fuller clearly discloses as stated previously and herein. Fuller discloses the mass layer comprising several thin sheets of lead, steel, aluminum, or composite fiberglass (i.e. it is implicitly that the several thin sheets are in contact with each other, therefore the constraining layer in contact with a passive damper or a constraining means in contact with the passive damping means)(Fig. 23). If the several thin sheets are lead, then at least one thin sheet of lead reads on a passive damper and at least another one thin sheet of lead reads on a constraining layer. If the several thin sheets are steel, then at least one thin sheet of steel reads on a passive damper and at least another one thin sheet of steel reads on a constraining layer. If the several thin sheets are aluminum, then at least one thin sheet of aluminum reads on a passive damper and at least another one thin sheet of aluminum reads on a constraining layer. If the several thin sheets are fiberglass, then at least one thin sheet of composite fiberglass reads on a passive damper and at least another one thin sheet of composite fiberglass reads on a constraining layer. See Fig. 23; column 4, lines 38-60; column 12, line 55 to column 13, line 10.

Appellant argue that "in stating the rejection the Examiner identifies, as analogous to the recited active damper, a piezoelectric material that operates solely as a sensor to generate an output signal for controlling a constraining layer (piezoelectric element 14 in Bicos). This identified structure (i.e., the piezoelectric element 14 in Bicos) does not operate so as to perform an active damping function, and, as such, does not constitute an active damper or active damper means as meant to one of

ordinary skill in this field" and further argues "the piezoelectric element 14 in Bicos does not identically constitute an actuator damping specific sound modes (as recited in claim 15) since this sensor of Bicos merely outputs a control signal and does not actually perform a damping function in general or damping of specific modes in particular". However, the examiner respectfully disagrees.

On page 8, paragraph 0036, the specification of the present application discloses that "a deformation in the electroactive element 201 can be **electrically dissipated by converting the mechanical energy of the deformation into electrical energy** that is fed to the electrode and subsequently dissipated by a shunt or other means", which clearly disclose that the electroactive element 201 operates as a sensor in a similar manner as Bicos. Therefore, Bicos discloses a constraining layer or mean in combination with either an active damper (claim 1), an actuator damping specific sound modes (claim 15) or an active damping means (claim 18). Furthermore, without the piezoelectric element (14,114,214,314,414), the apparatus of Bicos cannot perform a damping function in general or damping of specific modes in particular. Therefore the piezoelectric element (14,114,214,314,414) of Bicos contributes to the damping functions, in order for the apparatus of Bicos to provide damping in general or damping of specific modes in particular. See Figs. 1 and 4; column 3, line 16 to column 5, line 12; column 5, lines 22-45.

Appellant argue that "in stating the rejection the Examiner identifies, as analogous to the recited active damper, a piezoelectric material that operates solely as

a sensor to generate an output signal for controlling a constraining layer (sensor 40 in Baz). This structure (i.e., the sensor 40 in Baz) does not operate so as to perform an active damping function, and, as such, does not constitute an active damper or active damper means as meant to one of ordinary skill in this field" and further argues "the sensor 40 in Baz does not identically constitute an actuator damping specific sound modes (as recited in claim 15) since this sensor of Baz merely outputs a control signal and does not actually perform a damping function in general or damping of specific modes in particular". However, the examiner respectfully disagrees.

On page 8, paragraph 0036, the specification of the present application discloses that "a deformation in the electroactive element 201 can be **electrically dissipated by converting the mechanical energy of the deformation into electrical energy** that is fed to the electrode and subsequently dissipated by a shunt or other means", which clearly disclose that the electroactive element 201 operates as a sensor in a similar manner as Baz. Therefore, Baz discloses a constraining layer or mean in combination with either an active damper (claim 1), an actuator damping specific sound modes (claim 15) or an active damping means (claim 18). Furthermore, without the piezo-electric element layer (40), the device of Baz cannot perform a damping function in general or damping of specific modes in particular. Therefore the piezo-electric layer (40) of Baz contributes to the damping functions, in order for the device of Baz to provide damping in general or damping of specific modes in particular. See Figs. 3, 8, 24-35; column 6, lines 15-43.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Corey Chau

May 31, 2007

Conferees:

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